THE INFLUENCE OF ANTIOXIDANT VITAMINS INTAKE DURING PREGNANCY ON INFANT CORD BLOOD MERCURY CONCENTRATIONS

Meiqin Wu, *Shanghai Key Laboratory of Children's Environmental Health, Shanghai Institute for Pediatric Research, Xinhua Hospital Affiliated to Shanghai Jiao Tong University School of Medicine, China*
Chonghuai Yan, *Shanghai Key Laboratory of Children's Environmental Health, Shanghai Institute for Pediatric Research, Xinhua Hospital Affiliated to Shanghai Jiao Tong University School of Medicine, China*
Wei Wu, *Shanghai Key Laboratory of Children's Environmental Health, Shanghai Institute for Pediatric Research, Xinhua Hospital Affiliated to Shanghai Jiao Tong University School of Medicine, China*
Jian Xu, *Shanghai Key Laboratory of Children's Environmental Health, Shanghai Institute for Pediatric Research, Xinhua Hospital Affiliated to Shanghai Jiao Tong University School of Medicine, China*
Xiaodan Yu, *Shanghai Key Laboratory of Children's Environmental Health, Shanghai Institute for Pediatric Research, Xinhua Hospital Affiliated to Shanghai Jiao Tong University School of Medicine, China*
Xiaogang Yu, *Shanghai Key Laboratory of Children's Environmental Health, Shanghai Institute for Pediatric Research, Xinhua Hospital Affiliated to Shanghai Jiao Tong University School of Medicine, China*
Hui Li, *Shanghai Key Laboratory of Children's Environmental Health, Shanghai Institute for Pediatric Research, Xinhua Hospital Affiliated to Shanghai Jiao Tong University School of Medicine, China*

Background and Aims: Antioxidant vitamins(Vitamins A, C, E) belong to the unenzyme antioxidant system, and play an important antioxidant effect in the human body. Many animal experiments suggested that vitamin supplements would affect the concentration of mercury in vivo. This research attempts to analyse the relationship between pregnancy antioxidant vitamins intake and cord blood mercury level. And to explore the protective effect of antioxidant vitamins to the injure of mercury.

Methods: One maternal and child health center or general hospital was selected in each geography district, China. About 200 pairs of mothers and full-term infants were recruited from October to December 2008 in each hospital. The umbilical cord blood was collected from each infant, then the concentration of total mercury was analysed. All mothers were asked to fill a questionnaire, and 1246 mother answered the questions about the vitamin A, C, E consumption during pregnancy.

Conclusions: The proportion of continued taking vitamins A, C, E were 12.0%, 13.3% and 12.8%, respectively. The proportion of intermittent taking were 29.8%, 34.3%, 32.0%, and the not taking were 58.2%, 52.3%, 55.2%. The difference of mercury concentrations between the discontinuous and continued taking was not statistically significant. The differences between the not taking and intermittent taking were statistically significant (*P* values were 0.019, 0.001, 0.026), The differences between the not taking and the continued taking were also statistically significant (*P* values were 0.001, 0.000, 0.000). But with the increase of antioxidant vitamins taking frequency, the mercury concentrations of umbilical cord blood elevated. There was no difference on babies' birth length or birth weight among different vitamins and different frequency consumption. And the influence on the head circumference of birth was statistically significant , *P* values were all <0.05. So Our study found that antioxidant vitamins intake during pregnancy couldn't lower the umbilical cord blood mercury level, but increase it. This may be related to mothers' living habits during pregnancy. Antioxidant vitamins intake during pregnancy was positively related to the baby's brain development.

References:

Xu Z. (2007) Effects of BSO, GSH, Vit-C and DMPS on the nephrotoxicity of mercury. Toxicol Ind Health. 23(7):403-410

Beyrouty P(2006) Co-consumption of selenium and vitamin E altered the reproductive and developmental toxicity of methylmercury in rats. Neurotoxicol Teratol. 28(1):49-58

Chien LC, (2006) Analysis of the health risk of exposure to breast milk mercury in infants in Taiwan. Chemosphere. 64(1):79-85